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PART 1:

1. [POSITIVE TEST CASE]

Test picture:

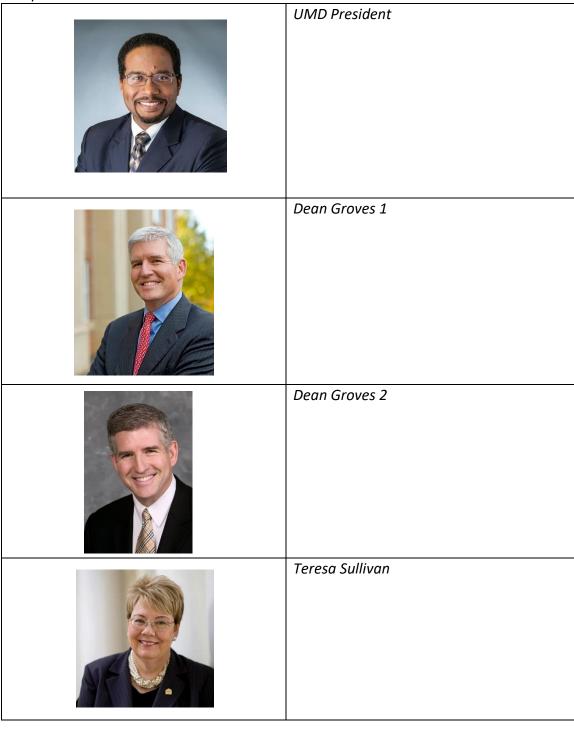


System processing image:

```
[ubuntu@ip-172-31-71-149:-$ python upload.py
[ubuntu@ip-172-33-71-149:-$ python test.py
(u'@c22494c=bldb=490e-afb3-aec6d753c2b7', 99.99870300292969)
Jim Ryan
(u'de542978-f8f6-4201-a9ac-5e5455aca411', 99.99909973144531)
Jim Ryan
(u'98ff911f-9107-4894-b37e-cb2ad173423a', 99.99700164794922)
Jim Ryan
ubuntu@ip-172-31-71-149:-$
```

2. [NEGATIVE TEST CASE]

Test pictures:

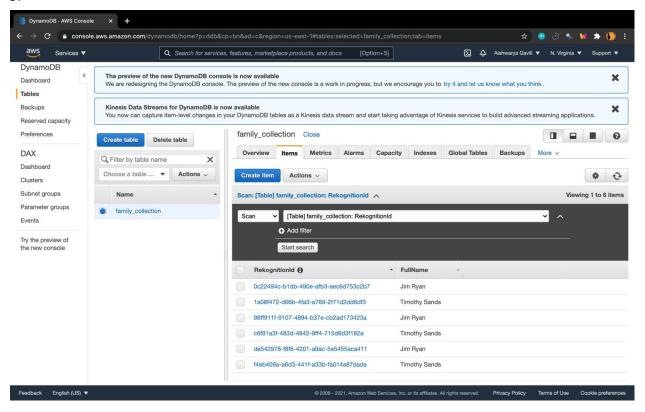




Group picture with random university presidents (Jim Ryan and Timothy Sands not included):

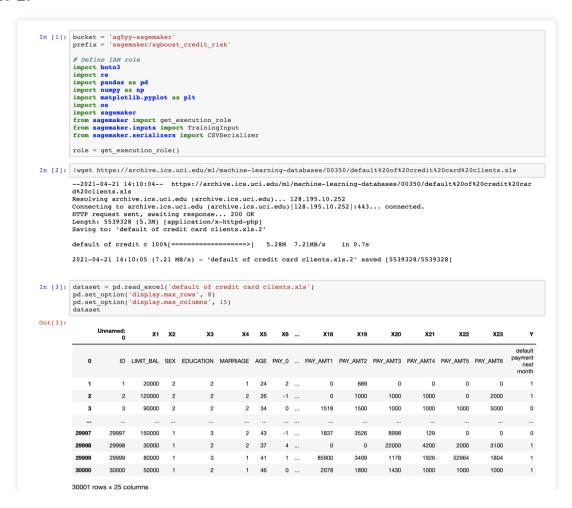
System processing image:

3.



PART 2:

1.



2.

```
In [13]: cm = pd.crosstab(index=test_data['Y'], columns=np.round(predictions), rownames=['Observed'], colnames=['Predicted'])
    tn = cm.iloc[0,0]; fn = cm.iloc[1,0]; tp = cm.iloc[1,1]; fp = cm.iloc[0,1]; p = (tp+tn)/(tp+tn+fp+fn)*100
    print("\n{0:<20}{1:<4.1f}\%\n".format("Overall Classification Rate: ", p))
    print("{0:<15}{1:<4.1f}\%\n".format("Predicted", "No Default", "Default"))
    print("Observed")
    print("{0:<15}{1:<2.0f}\% ({2:<}){3:>6.0f}\% ({4:<})".format("No Default", tn/(tn+fn)*100,tn, fp/(tp+fp)*100, fp))
    print("{0:<16}{1:<1.0f}\% ({2:<}){3:>7.0f}\% ({4:<}) \n".format("Default", fn/(tn+fn)*100,fn, tp/(tp+fp)*100, tp))

Overall Classification Rate: 82.1\%

Predicted No Default Default
Observed
No Default 84\% (2245) 33\% (107)
Default 16\% (429) 67\% (220)</pre>
```

3. What percent of the time did you predict a person would default on their credit card payment and they actually did default?

67%

4. What percent of the time did you predict a person would NOT default on their credit card and they actually did NOT default?

84%